



# Waterways

A film about water, language, and a  
changing way of life

Olga Lovick, *First Nations University of Canada*

Jessica Cherry, *International Arctic Research Center and  
Institute of Northern Engineering, University of Alaska  
Fairbanks*

Patrick Harman

# Note

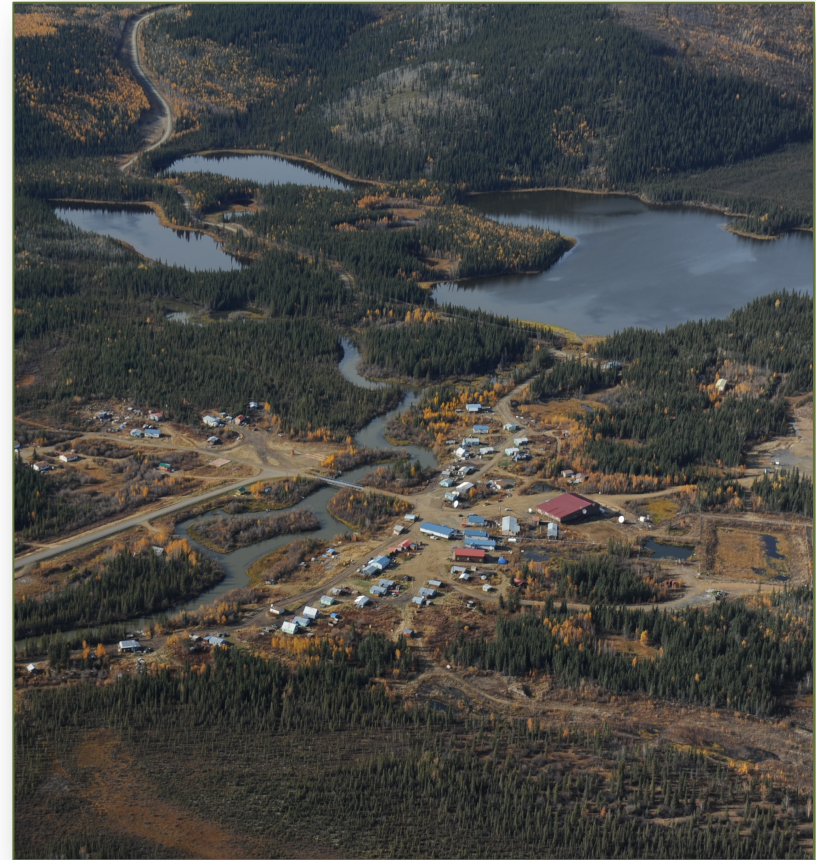
- This presentation originally contained several video clips that will not yet be posted online.

# In summer...

***Nahk'ade*** 'fish trap' Last Tetlin



***Teedlqy Keey*** 'current flows village' Tetlin





and in winter...

***Nudh' qq Mann'*** 'island lake'  
**Nuziamund Lake**



***Teedlqy Keey*** 'current flows  
village' Tetlin





# the life of the Tetlin people

## *Teedlay t'iin naholndak niign*

*Stories by the Tetlin People*

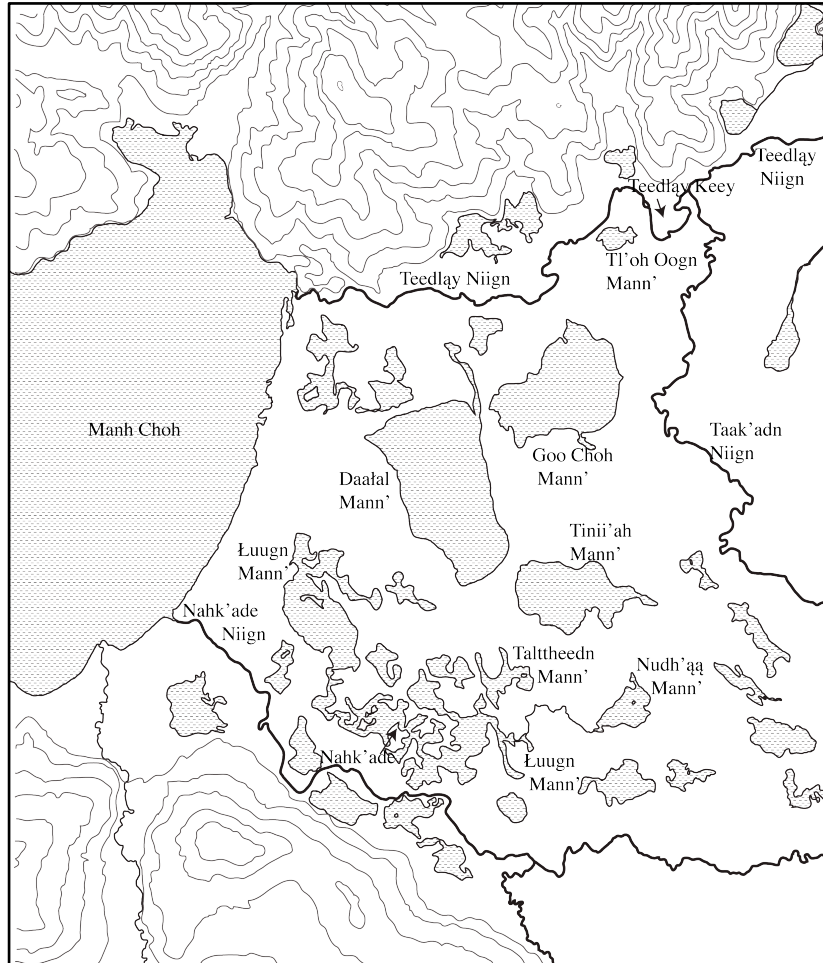
*Told by Cora David  
in her native Athabascan language*

*Olga Lovick, Editor*



- is shaped by the waterscape they live in:
  - water provides food
  - water allows for “easy” travel in summer as well as in winter, which makes more resources accessible
  - but water poses also danger, through floods and boating accidents
- water is part of many stories

# Water and TEK



- Water is the starting point for the documentation of traditional ecological knowledge in the Tetlin area.
- No matter what you ask about, people will link it back to water in some form.

# Traditional ecological knowledge

- “[TEK] is a cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationships of living beings (including humans) with one another and with their environments. ... [It] is a way of knowing; it is dynamic, building in experience and adapting to changes.”  
Berkes (2012:7)



# Our goal

- was to show some Tetlin TEK about water in form of a film
  - demonstrating the importance of waterways to the Tetlin people
  - showing how their lives have changed
  - and do this **in their own words in their own language**
- an outreach project intended for the native community as well as for the general public.

# Outline

- Tetlin and Upper Tanana
- Team
- Climate change
- Funding
- Resources
- Progress and problems
- Product

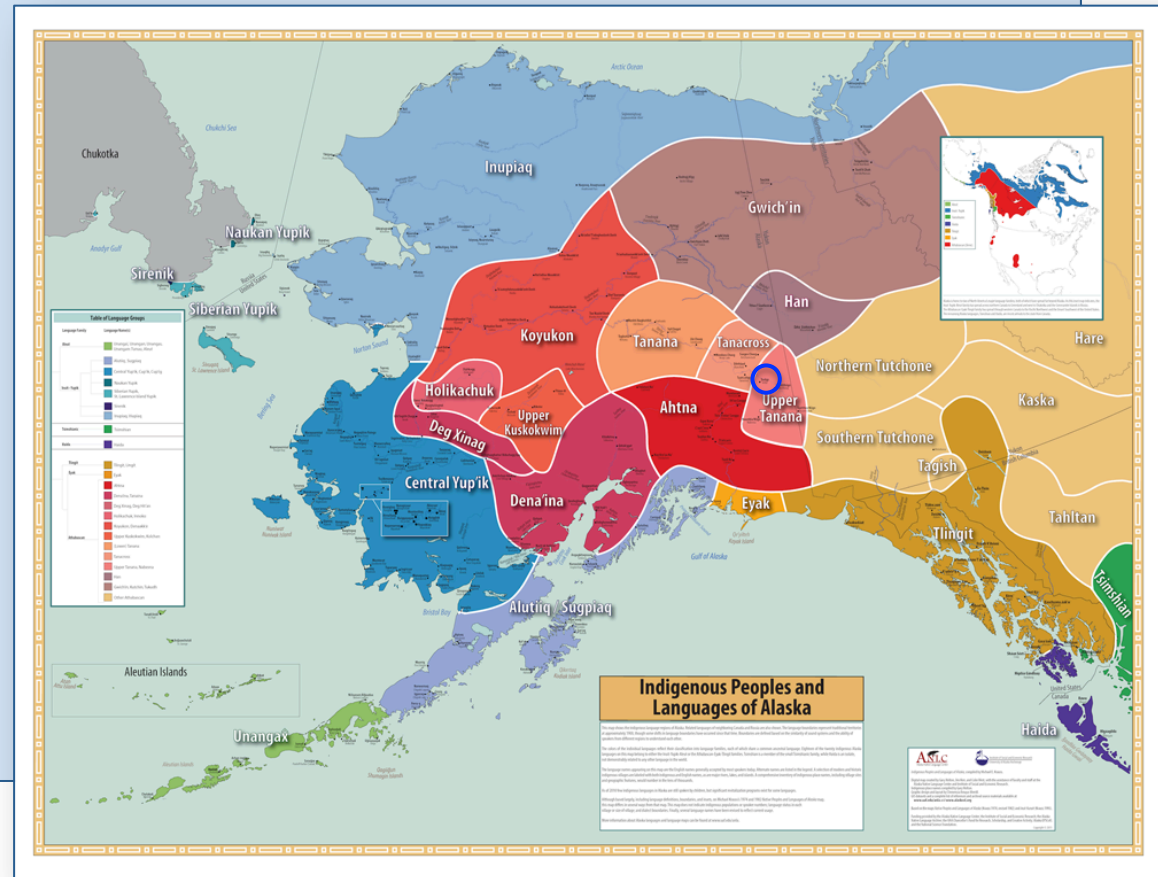
Going along Wife Creek  
Photo by Patrick Harman



# Tetlin and the Upper Tanana

- Tetlin (Teetlay Keey) is located in eastern interior AK
- Traditionally, the Upper Tanana Athabascan language was spoken
- Only 4 or 5 people speak the Tetlin dialect today
- First contact in 1880s, school established in 1920s

Map source: Krauss et al. (2010)





# The Tetlin people

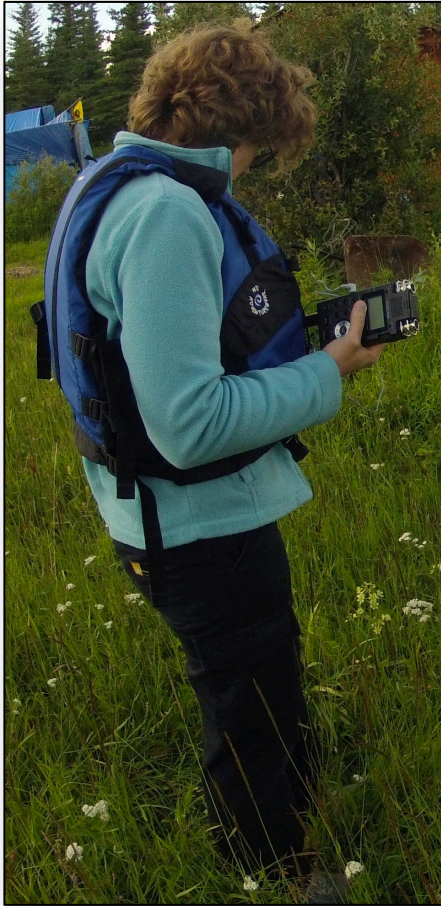
- were traditionally semi-nomadic, and still like to travel:
  - to harvest food (moose, caribou, whitefish, berries)
  - to visit relatives in the surrounding communities
  - to go into town for health & food

Tetlin road,  
April 2008  
Photo by:  
Olga Lovick



Boat at Last Tetlin,  
UAF-1987-0114-00012

# Team



Olga Lovick  
(Linguist)

Photo by Patrick Harman



Cora David  
(Language & Culture Expert)  
Photo by Siri Tuttle



Jessica Cherry  
(Hydrologist)  
(Pilot)

Photo by Patrick Harman



# Team



Patrick Harman  
(Media Designer)



Roy H. David Sr.  
(Guide)



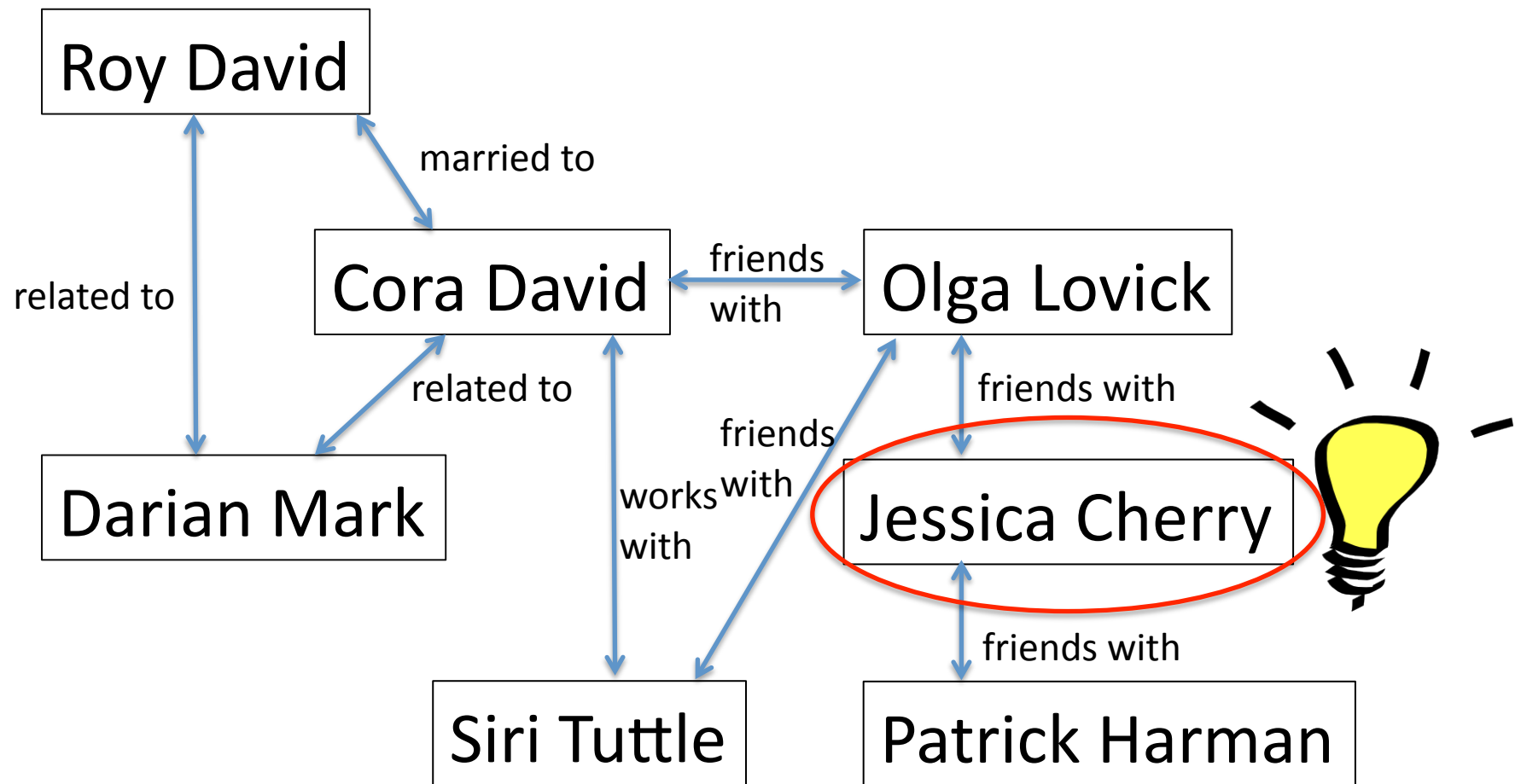
Siri G. Tuttle  
(Voice)

Darian D. Mark  
(Boat Pilot)





# Team network



# Climate and climate change

- temperatures between  $-70^{\circ}\text{F}$  and  $+80^{\circ}\text{F}$
- weather is less predictable
- freeze-up comes later
- lakes and creeks are silting up
- “drunken” trees
- change in animal condition & migration patterns ...



Tetlin river July 2012  
Photo by Patrick Harman

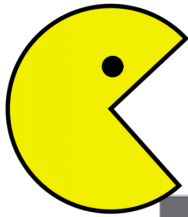
# Climate and climate change

- Climate change directly impacts daily life.
- Subsistence:
  - harder to hunt caribou
  - waterways are closing up
  - fewer berries
  - low-quality furs
- Social life:
  - visiting relatives
  - potlatches



Tetlin Road,  
January 2013  
Photo by:  
Lydia David





**PAC  
MAN**

Building Cyberinfrastructure Capacity in Alaska and Hawaii



ARSC Weather Modelling



Supercomputer weather modelling,  
forecasts, and predictions for all of Alaska

PACMAN (Pacific Area Climate Monitoring and Analysis Network) is a multi-year effort to better understand how climate change impacts freshwater resources (and the communities that depend on those resources) in Alaska and Hawaii. The goal is to utilize existing supercomputing facilities, climate observations, and regional freshwater resources to assess the impact of change on local communities.

#### Climate Observations

Stormtracks

**GINA**

Geographic Information  
Network of Alaska

**IARC**

International Arctic Research  
Center

**IARC-INE**

Hydroclimatology Group

**Ground-based Sensor  
Networks**

Studying Alaskan climate and  
hydrology with ground-based  
sensor networks.

#### Freshwater Resources

**SPHN**

Seward Peninsula  
Hydrometeorology Network

**WERC**

Water and Environmental  
Research Center (Current  
Data)

**Airborne Remote Sensing**

Airborne remote sensing for  
study of the water cycle

#### Community Impact

**Anvil City Science Academy**

A public charter school in  
Nome, Alaska.

**Alaska EPSCoR**

Experimental Program to  
Stimulate competitive  
Research

**Rural Alaska**

Partnering with communities  
to study water resources in  
rural Alaska

#### Supercomputing

**ARSC**

Arctic Region Computing  
Center's Pacman

**ARSC Weather Modelling**

Supercomputer weather  
modelling, forecasts, and  
predictions for all of Alaska

**MHPCC**

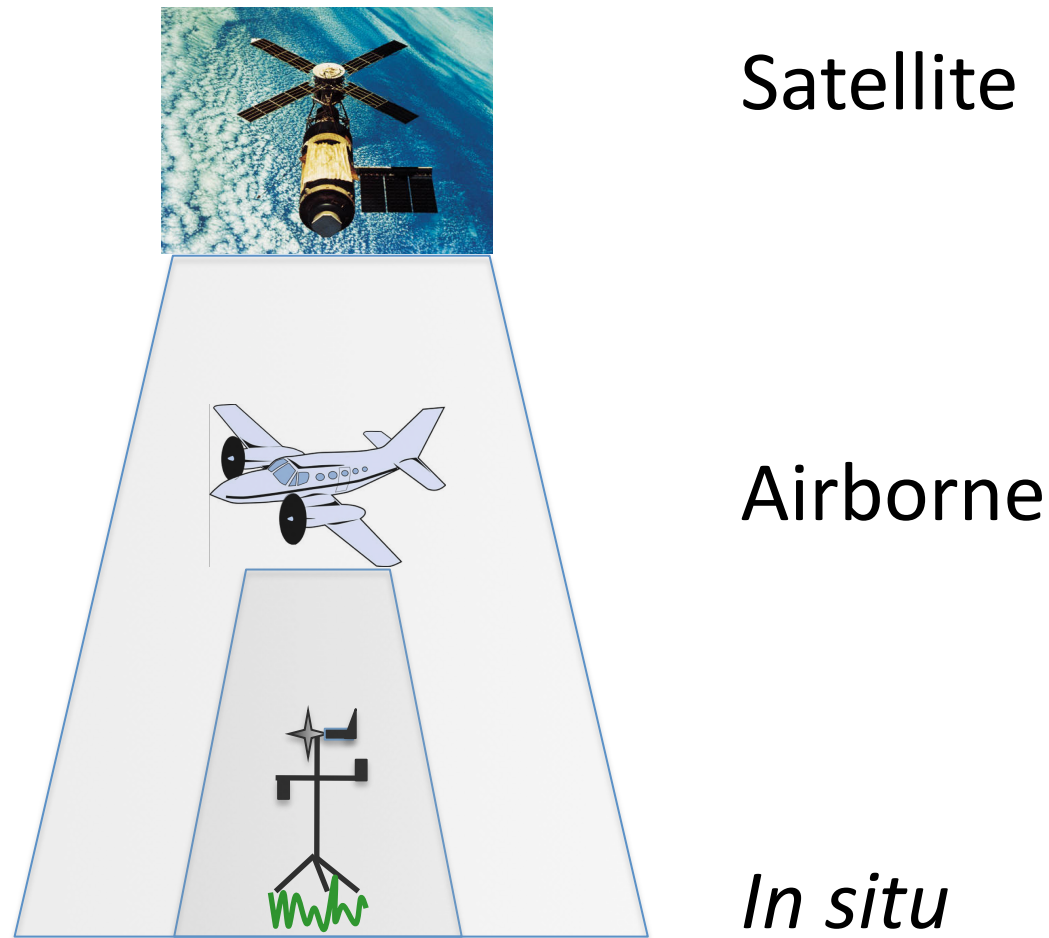
Maui High Performance  
Computing Center

**UAF Smoke**

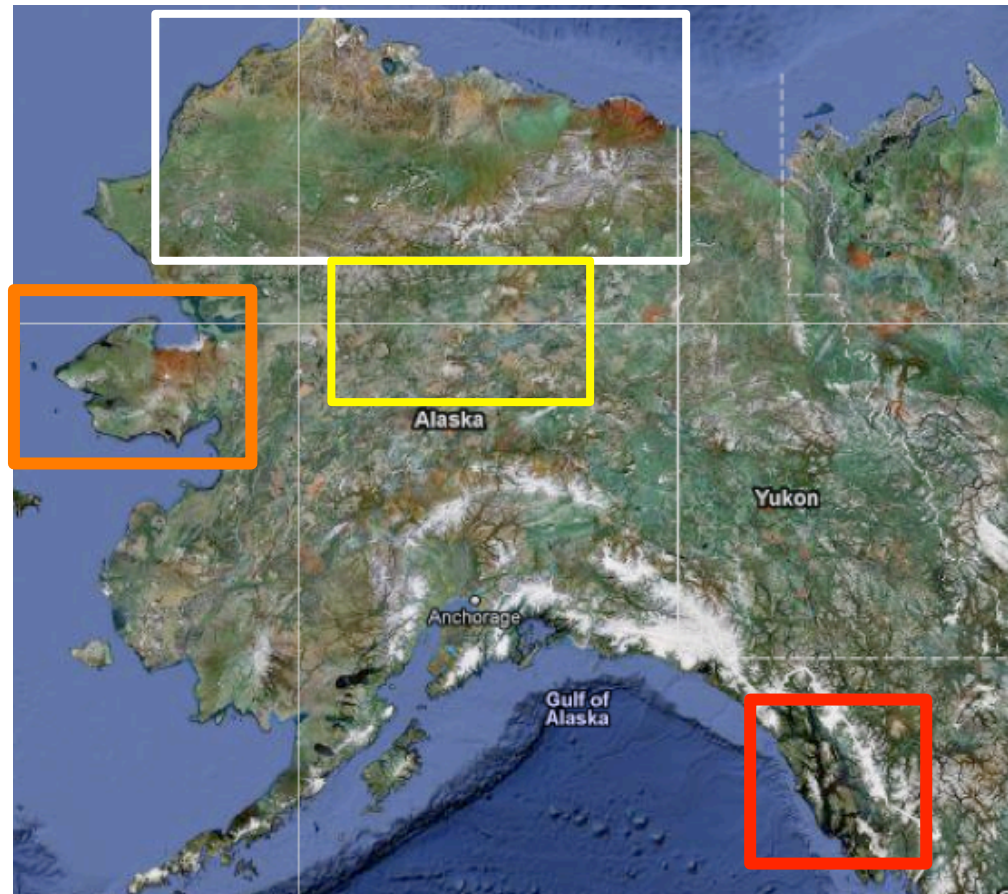
Supercomputer wildfire smoke  
forecasts by ARSC

[Pacman.alaska.edu](http://Pacman.alaska.edu)

# Our Approach: multiple scales of hydroclimatologic sensors and cyberinfrastructure



PACMAN is helping support *in situ* sensor webs, each driven by basic research and societal need



- Seward Peninsula
- North Slope East/West
- Interior Alaska Meso-net (UAF/Private Partnership)
- Southeast Alaska (projects working parallel to PACMAN)

# Resources

- recordings, transcripts, translations (David 2011)
- place name lists and maps by James Kari (1997) with additions by OL
- three D imaging technique
- historical photos
- an airplane and a pilot
- money from PACMAN

Jessica Cherry and Sweetpea.  
Photo: R. Busey





# Resources

- We selected three stories illustrating different ways of interacting with Tetlin's waterways.
- They are arranged in reverse chronological order:
  - trapping muskrat with her parents
  - a great flood during the childhood of Cora's mother
  - the story of a drowned child in Butterfly Lake at the time of Cora's grandparents

# Progress and problems

- How do we present a language that almost nobody in the audience can understand?
- How can we hold people's attention?
  - typography (arrangement)
  - typography (text size)
  - translation after every utterance
- How can we make the viewer feel that they 'learned' something about the language?
  - typography (text color)

# Problems and solutions: Access

- Tetlin is accessible by “road”, but the rest of the area is not.

- maps
- aerial photos
- archival photos
- graphics
- plane trips in  
December 2010, September 2011, and July 2012
- boat trip to Nahk’ade in July 2012



Small lake next to Gasoline Lake.

Photo by Jessica Cherry and Forest Kirst

# Problems and solutions:

## Organization and time

- Because of other travel, there was a 2-day time window (Monday/Tuesday) for the boat trip.
- We needed good weather, a boat, a driver, and a guide.
- On Monday, we had no boat, no driver, and no guide, but the weather was good.
- And once we got to Tetlin, everything fell into place.



# Interdisciplinary work: Challenges

Issue	Linguist	Hydrologist / Pilot	Media designer
REB/IRB approval	Quiet resignation	*#&%	*#&%
Risk management form	*#&%!!!	*#&%!!!	*#&%!!!
All consultants have left the village	Quiet resignation	??????	Quiet resignation
Weather making travel impossible	*#&%	Quiet resignation	*#&%!!!
2-year old answers the phone all day	On the verge of nervous breakdown	Quiet resignation	Amusement
Spelling	Always room for improvement	Who cares?	Just make up your mind!
Video editing	Are we done yet?	Are we done yet?	Always room for improvement

## Lessons learnt:

- Relax! There's no cure for university administrations, terrible weather, or incompatible communication habits. Just go with it.
- Researchers and media designers live in different universes, especially where deadlines are concerned.
- The Tetlin people LOVED this project.

# Tsin'jj!

- Donald (Danny) Adam (Tetlin) for his boat
- Robert Busey (Fairbanks) for transport
- Lydia David (Tetlin) for advice and photos
- Roy H. David Sr. (Tetlin) for everything
- James Kari (Fairbanks) for maps and help
- Darian D. Mark (Tetlin) for driving the boat
- Forest Kirst (Fairbanks) for piloting the plane
- Rowena Paul (Tetlin) for lots of advice
- Siri Tuttle (Fairbanks) for voice and photos
- Cora David (Tetlin) for everything

# References

- Berkes, Fikret. 2012. *Sacred ecology (third edition)*. New York, London: Routledge.
- David, Cora. 2011. *Teedlqy t'iin naholndak niign: Stories by the Tetlin people. Edited by Olga Lovick*. Fairbanks: Alaska Native Language Center.
- Kari, James. 1997. *Upper Tanana place names lists and maps. Compiled and edited by James Kari, Alaska Native Language Center*. Final Report for the project "Upper Tanana Athabaskan Place Names in the Vicinity of Wrangell-St. Elias National Park", sponsored by Wrangell-St. Elias National Park, during 1995-1997.
- Krauss, Michael E., Gary Holton, Jim Kerr, and Colin T. West (eds.). 2010. *Indigenous peoples and languages of Alaska*. Fairbanks, Anchorage: Alaska Native Language Center and UAA Institute for Social and Economic Research.
- McKenna, Robert A. 1959. *The Upper Tanana Indians, Yale University Publications in Anthropology*. New Haven: Department of Anthropology, Yale University.